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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TOSHIAKI OKUNO and MASAYUKI NISHIMURA

Appeal 2010-003648
Application 09/781,564
Technology Center 2600

Before DEBRA K. STEPHENS, KRISTEN L. DROESCH, and
LARRY J. HUME, *Administrative Patent Judges*.

HUME, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134(a) of the rejection
of claims 1-18. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

STATEMENT OF THE CASE ¹

The Invention

The present invention relates to a wavelength division multiplexing optical transmission system, having an optical amplifier, for transmitting multiple-wavelength signal light.

Spec. p. 1, ll. 6-9, “Field of the Invention”.

Exemplary Claim

Exemplary independent claim 1 under appeal reads as follows
(*emphasis* added to contested limitation):

1. An optical transmission system comprising:
 - an optical transmission line through which a plurality of signal light components having wavelengths different from each other included in a predetermined wavelength band are transmitted;
 - an optical amplifier, installed on said optical transmission line, having a wavelength-dependent noise figure; and
 - a plurality of multiplexing stations each constituted by a signal multiplexing section installed on said optical transmission line connected to an input end side of said optical amplifier, and at least one signal light outputting means for outputting a signal light component multiplexed at said signal multiplexing section;

wherein, between two of said multiplexing stations adjacent each other, said signal light outputting means of said multiplexing station disposed upstream in a signal light propagating direction outputs a signal light component having a signal wavelength set so as to yield a noise figure

¹ Throughout this Decision, we refer to the Appeal Brief (App. Br.) filed Jan. 29, 2007; the originally-filed Specification (Spec.); the Non-Final Office Action (NFOA) mailed Sep. 3, 2004; and the Examiner’s Answer (Ans.) mailed June 19, 2007.

lower than that of the signal wavelength of a signal light component outputted from said signal light outputting means of said multiplexing station disposed downstream.

Prior Art

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Mitsuda	5,563,733	Oct. 8, 1996
Ogoshi	6,028,698	Feb. 22, 2000
Shimomura	6,404,525	June 11, 2002 (filed Jul. 28, 1998)

Rejections on Appeal

1. The Examiner has rejected claims 1, 3, 4, 6, 8, 9, 11, 13, 14 and 16-18 under 35 U.S.C § 103(a) as being unpatentable over Mitsuda in view of Ogoshi. (Ans. 3-7; NFOA 2-6; and App. Br. 7).

2. The Examiner has rejected dependent claims 2, 5, 7, 10, 12 and 15 under 35 U.S.C § 103(a) as being unpatentable over Mitsuda and Ogoshi in view of Shimomura. (Ans. 7-8; NFOA 6-7; and App. Br. 7).

PRINCIPLES OF LAW

When it is necessary to select elements of various teachings in order to form the claimed invention, we ascertain whether there is any suggestion or motivation in the prior art to make the selection made by applicant.

Interconnect Planning Corp. v. Feil, 774 F.2d 1132, 1143 (Fed. Cir. 1985).

In *KSR*, the Court held the following:

Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit. *See In re Kahn*, 441 F. 3d 977, 988 (C.A. Fed. 2006) (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”). As our precedents make clear, however, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.

KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398, 418 (2007).

ISSUE

35 U.S.C § 103(a): Claims 1-18

Appellants contend that the Examiner has erred by improperly construing the teachings of the Mitsuda reference, i.e., “in view of the clear difference between the optical fiber amplifier of the primary reference, Mitsuda, and the optical transmission system of the present claimed invention, the rejection is not sustainable.” (App. Br 9).

Further, Appellants contend that Mitsuda’s “WDM couplers 21 to 23 are all used for coupling the signals with the pump light. Mitsuda does not disclose or suggest the multiplexing of signals 51 and 53.” (App. Br. 9-10) (emphasis omitted).

In addition, Appellants contend that “with Mitsuda's optical amplifier, the noise figure of the amplifier is directly adjusted. Mitsuda clearly states that as to this amplifier ‘...noise can be minimized by exciting the signal by the 0.98 μm pump light at an output section of the optical fiber amplifier.’ See col. 7 of Mitsuda, lines 60 through 66. . . . [T]he noise figure of the amplifier disclosed by Mitsuda is directly adjusted within the amplifier itself as apparent from a reading of column 7 of Mitsuda, lines 20 through column 8, line 4.” (App. Br. 10).

Appellants also contend that “in the optical transmission system of the present invention, the noise figure of the amplifier itself is not adjusted, and fluctuations in S/N ratio are reduced according to the correlation between the wavelength dependency of the noise figure and the transmission length, as described in the written description of the specification. Such an optical transmission system and optical transmission method are neither disclosed nor suggested by the applied art.” (App. Br. 10) (emphasis omitted).

Issue: Did the Examiner err in finding that Ogoshi in combination with Mitsuda teaches or suggests the limitation “wherein, between two of said multiplexing stations adjacent each other, said signal light outputting means of said multiplexing station disposed upstream in a signal light propagating direction outputs a signal light component having a signal wavelength set so as to yield a noise figure lower than that of the signal wavelength of a signal light component outputted from said signal light outputting means of said multiplexing station disposed downstream”?

ANALYSIS

We have reviewed the Examiner's rejections in light of Appellants' arguments that the Examiner has erred. We disagree with the Examiner's conclusions that Ogoshi's teaching cited in the Answer (Ans. 4) meets the claim limitation at issue.

We find that the Examiner has not made a prima facie case for unpatentability by failing to identify where the art of record teaches or suggests the physical arrangement of upstream/downstream multiplexing stations relative to signal wavelengths set so as to yield an upstream noise figure lower than that of the signal wavelength outputted from a multiplexing station disposed downstream, as variously recited in the claims on appeal.

We are not persuaded that neither Mitsuda's nor Ogoshi's processes, even in light of the Examiner's observation that "because the overall noise figure of the optical fiber amplifier is dominated by the noise figure of the front stage and a low noise figure at the input is advantageous to help maintaining its output optical power" (Ans. 5), teaches the limitation at issue, or even generally accounts for the location of multiplexing stations for different wavelengths based upon the noise figure versus wavelength characteristics of the optical amplifier and the transmission lengths between the multiplexing stations and the optical amplifier.

Having found at least one error by the Examiner in analyzing the art of record and construing the claims, we need not reach a conclusion on the merits of other contentions made by Appellants.

Accordingly, we do not sustain the Examiner's rejection of claims 1, 3, 4, 6, 8, 9, 11, 13, 14 and 16-18.

Also, with respect to the rejection of claims 2, 5, 7, 10, 12, and 15, and as applied by the Examiner (Ans. 7), Shimomura does not remedy the deficiencies of Mitsuda and Ogoshi discussed above with respect to the rejection of independent claim 1. Accordingly, for the same reasons as claim 1, we do not sustain the rejection of claims 2, 5, 7, 10, 12, and 15.

DECISION

1. The decision of the Examiner to reject claims 1, 3, 4, 6, 8, 9, 11, 13, 14 and 16-18 under 35 U.S.C § 103(a) as being unpatentable over Mitsuda in view of Ogoshi is reversed.

2. The decision of the Examiner to reject claims 2, 5, 7, 10, 12 and 15 under 35 U.S.C § 103(a) as being unpatentable over Mitsuda and Ogoshi in view of Shimomura is reversed.

REVERSED

msc